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Review article

What works in delivering dementia education or training to hospital staff? A critical synthesis of the evidence

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Abstract

Background: The quality of care delivered to people with dementia in hospital settings is of international concern. People with dementia occupy up to one quarter of acute hospital beds, however, staff working in hospitals report lack of knowledge and skills in caring for this group. There is limited evidence about the most effective approaches to training hospital staff on dementia.

Objective: The purpose of this literature review was to examine published evidence on the most effective approaches to dementia training and education for hospital staff.

Design and review methods: The review was conducted using critical synthesis and included qualitative, quantitative and mixed/multi-methods studies. Kirkpatrick's four level model for the evaluation of training interventions was adopted to structure the review.

Data sources: The following databases were searched: MEDLINE, PsycINFO, CINAHL, AMED, British Education Index, Education Abstracts, ERIC (EbscoHost), The Cochrane Library-Cochrane reviews, Economic evaluations, CENTRAL (Wiley), HMIC (Ovid), ASSIA, IBSS (Proquest), Conference Proceedings Citation Indexes (Web of Science), using a combination of keyword for the following themes: Dementia/Alzheimer's, training/education, staff knowledge and patient outcomes.

Results: A total of 20 papers were included in the review, the majority of which were low or medium quality, impacting on generalisability. The 16 different training programmes evaluated in the studies varied in terms of duration and mode of delivery, although most employed face-to-face didactic techniques. Studies predominantly reported on reactions to training and knowledge, only one study evaluated outcomes across all of the levels of the Kirkpatrick model. Key features of

training that appeared to be more acceptable and effective were identified related to training content, delivery methods, practicalities, duration and support for implementation.

Conclusions: The review methodology enabled inclusion of a broad range of studies and permitted common features of successful programmes to be identified. Such features may be used in the design of future dementia training programmes, to increase their potential for effectiveness. Further research on the features of effective dementia training for hospital staff is required.

Keywords: literature synthesis; dementia; education; hospitals; staff training; workforce development.

Introduction

There is widespread global concern around the quality of care given to people with dementia (Alzheimer's Disease International, 2010, WHO/Alzheimer's Disease International, 2012). Around one quarter of UK hospital beds are occupied by people with dementia (Alzheimer's Society, 2009) and in the US people with the condition have more hospital stays than the general older population (Alzheimer's Association, 2015). In a recent review of evidence Dewing and Dijk (2016) concluded that there are many negative impacts simply from being admitted to a general hospital for a person with dementia including falls, malnutrition and dehydration, delirium and functional decline. These are compounded by a negative culture of care and poor staff attitudes that label people with dementia as 'difficult', staff shortages and lack of time to adequately meet the often complex care needs of this group. The adequacy of workforce skills and knowledge to provide effective care to people with dementia have been questioned (Department of Health, 2009, US Department of Health and Human Services, 2013). Poor staff skills, knowledge (Eriksson and Saveman, 2002, Thompson and Heath, 2011) and attitudes (Eriksson and Saveman, 2002, Moyle et al., 2010) and a negative culture of care (Cowdell, 2009, National Audit Office, 2010, Webster, 2011) are all reported to contribute to the often poor care quality for people with dementia seen in hospital settings. In the UK there have been a number of longstanding policy initiatives (Department of Health, 2014, Department of Health, 2009, Department of Health, 2015, Department of Health, 2012) to address this skills gap leading to increased dementia training activity. However, limited consideration has been given to the most effective approaches to training the hospital workforce.

Background

Understanding the components of effective education and training is an ongoing challenge within educational research. The range of knowledge, skills, competencies and qualities required of healthcare professionals and the need to prepare health professionals to be accomplished and responsible practitioners, makes provision of high quality education and training both complex and important. The way in which education and training is provided has a significant role in shaping how health professionals behave in practice (Schulman, 2005). A model widely adopted in the evaluation of training and education provision (Bates, 2004) is Kirkpatrick's (1984, 1979) four level 'Return on Investment' model.

- Level 1: Examines the learners' *reaction* to and satisfaction with, the programme;
- Level 2: Assesses the extent of *learning* and includes knowledge, skills, confidence and attitudes;
- Level 3: Explores the extent to which completion of the training leads to staff *behaviour* or practice change;

- Level 4: Assesses the *results* or outcomes of training, for example in terms of quality of patient care.

The four levels of the model are all deemed important to gather in an evaluation of a training programme. Kirkpatrick's model has received critique for providing an over simplified or incomplete understanding of the processes for the transfer of learning into practice, for implying associations between each level and its previous or following level, for suggesting a hierarchy of evidence where behavioural or outcome change are deemed more important than reaction, and for its lack of empirical testing (Giangreco et al., 2008, Holton, 1996, Tamkin et al., 2002). However, it remains a widely applied approach that is recognised as beneficial for structuring the evaluation of training in order to understand potential return on investment. Therefore, the model was used as a structure for this review, with 'effectiveness' being defined as the production of positive outcomes at any of the levels. This may include pedagogical effectiveness at levels one and two and practice/clinical effectiveness at levels three and four.

A range of factors associated with training content, delivery methods and implementation mechanisms, barriers and facilitators are likely to impact effectiveness of training at each of the Kirkpatrick levels. To date systematic reviews on dementia education and training have been conducted, which have focussed on the workforce in care homes/long-term care settings (Beeber et al., 2010, Fossey et al., 2014, Kuske et al., 2007), primary care (Perry and et, 2011), on pre-registration and inter-professional education (Alushi et al., 2015, Brody and Galvin, 2013) or specific aspects of dementia care such as palliative care (Raymond et al., 2014), communication skills (Eggenberger et al., 2013, Zientz et al., 2007) facilitation of practice change (Elliott et al., 2012), and management of behavioural and psychological symptoms of dementia (McCabe et al., 2007, Spector et al., 2013). These published reviews largely provide a description of the existing evidence-base with a focus on quality of the research, training aims, content, format, delivery methods, learner characteristics, outcomes/how effectiveness is evaluated and draw generic conclusions regarding training effectiveness in dementia associated with different outcomes (e.g. knowledge gains, attitude change etc). To date only one narrative review of 14 studies has been published on training in dementia for hospital staff (Scerri et al., 2016). It summarised the quality of the selected studies, the characteristics of the training programmes reported, the outcomes evaluated and effectiveness and the challenges and solutions associated with developing and evaluating training programmes on dementia in hospital settings. It concluded that further high quality research is needed, in particular studies that focus on staff behaviours and patient outcomes.

Given the complex interplay of factors that are likely to contribute to whether training is effective at each Kirkpatrick level, to draw conclusions about whether 'training' as a general intervention is, or is not effective, fails to recognise this complexity. However, across all of the systematic reviews to date, the specific elements of

training programmes that appear to be most, or least effective have not consistently been considered. Only four of the reviews have considered the impact of any specific features of training on its effectiveness. Elliott et al. (2012) compared the findings of training with and without additional staff support/supervision, they found mixed results across the training interventions and concluded that there were no evident patterns for interventions with or without staff support. Conversely, Spector et al. (2012), in their review of training to help staff support common behaviours that may be exhibited by people with dementia, concluded that including supervision sessions in addition to a formal training programme improves overall effectiveness, and may maximise the transfer of learning, particularly for programmes run over a relatively short period. This is echoed in the review by Fossey et al. (2014), which examined evidence for effectiveness of person-centred intervention and training manuals. They concluded that the training and related interventions that demonstrated benefit were delivered over a period of at least four-months, and included ongoing clinical supervision or support to assist with embedding implementation into practice. They conclude commissioning of one-off training is likely to be ineffective. Perry et al. (2011) found programmes that were the most effective for the primary care workforce, required participants to engage in active learning. All of the reviews conclude further research is required into effective approaches to dementia training and education. However, given reviews to date have generally failed to examine the specific features of training programmes concluded to be effective, there potentially remains much to be learnt for the design of future training programmes from conducting a review of this type of the existing evidence base.

Aims

The aims of this review were to identify the factors associated with effective dementia education and training for staff working in hospital settings.

Method

This review is part of a larger study [name of study removed for peer review process] examining the factors associated with effective dementia education and training across all health and social care settings. In the larger study, a systematic review was conducted (REF removed for peer review process), however, the analysis did not differentiate between or examine positive features of training in relation to specific care setting types. The largest proportion of studies in this larger review (49%) were conducted in care home settings. Acute hospitals, form a significantly different context to care homes for delivery of dementia care training, since staff work across a range of specialisms, most have limited dementia expertise and patients with dementia are usually acutely unwell during admission with another primary illness diagnosis. Relatively little research has been published concerning dementia training in acute hospital settings and therefore this review addresses that gap by undertaking a sub-analysis of the hospital studies included in the larger review. It also builds on the work published in the previous review by Scerri et al.

(2016) through identifying additional relevant studies and synthesising the features and components of training most likely to leading to positive outcomes.

Search Strategy

Search strategies were agreed by the authorship team based on keywords developed from initial scoping searches. The following databases were searched: MEDLINE, PsycINFO, CINAHL, AMED, British Education Index, Education Abstracts, ERIC (EbscoHost), The Cochrane Library-Cochrane reviews, Economic evaluations, CENTRAL (Wiley), HMIC (Ovid), ASSIA, IBSS (Proquest), Conference Proceedings Citation Indexes (Web of Science). Searches consisted of a combination of text words and subject headings for the following themes: Dementia/Alzheimer's, training/education, staff knowledge and patient outcomes. Inclusion criteria were studies written in English and published between 2000 and April 2015. Other sources such as reference lists of key papers and e-alerts were used to include papers published between search completion and the end of November 2015. A focussed supplementary search was conducted in October 2016 to identify additional papers published between April 2015 and October 2016.

Procedure

All database hits were downloaded into Endnote software, and duplicate entries were removed. Papers were excluded initially by a screen of the title for relevance and then abstract review of potentially relevant papers and finally full paper review of the remaining articles (see Figure 1). The review was completed by one of the authors (CS or CG) or one of the research assistants (FD or RTR - see acknowledgements). All reviewers conducted a reliability check on an initial sample of 25 titles and abstracts and a sample of 20 full papers ahead of reviewing further titles/papers independently. Where there was uncertainty or disagreement a discussion was held and agreement reached. Papers deemed not to be relevant were excluded at each stage.

Data extraction from all relevant papers was completed by one of the authors (CS or CG) or research assistants (FD, RTR or SA) using a standard Excel template. Additional, tighter relevance criteria were developed and applied to the remaining papers to ensure all included papers were able to contribute to the review aims. They were that the study: reported on primary research; evaluated a dementia training programme or pedagogical approach to delivery of dementia training; was delivered to staff working in health or social care settings; reported on at least one of Kirkpatrick's (1984, 1979) four levels of training evaluation. A final screen of the titles of all excluded papers was conducted by one of the authors (xx) to ensure that no potentially relevant papers had been excluded. Finally, papers where hospital staff were the only or primary (>50% of participants) recipients of training were selected for inclusion in this review.

Analysis

An critical synthesis of the evidence was conducted drawing on elements of Critical Interpretive Synthesis (Dixon-Woods et al., 2006), a method that permits synthesis of large amounts of diverse literature.. Critical Interpretive Synthesis is a particularly useful method when the studies to be reviewed use different research methods and stem from a range of disciplines. CIS is recommended where the review is intended to inform evidence-based practice and decision-making. We drew particularly on its flexible approach to inclusion of qualitative, quantitative and mixed/multi-methods studies, approaches to including research of varied quality. And use of use of comparison (Kangasniemi et al., 2014), which permitted critique and synthesis of the evidence beyond a descriptive review. Kirkpatrick's (1984, 1979) four-level model for the evaluation of training interventions was used as the underpinning structure for the analysis.

Quality Review

We did not exclude papers based on quality, but did conduct a quality review and provided a quality rating for each paper. This was to permit a description of quality of the evidence base within the analytic process. The quality review was conducted using an adapted version of criteria developed by Caldwell et al (Caldwell et al., 2005) and the Critical Skills Appraisal Programme (Critical Appraisal Skills Programme (CASP), 2014) with a maximum possible quality score of 14 (see table 1). Papers were then given a quality banding based on the allocated score of, high (score 11-14), medium (score 6-10) or low (score ≤ 5). The quality review was conducted independently by the authors, on an initial sample of 15 papers included in the larger review, to achieve inter-rater agreement of ratings. The scores were compared, disagreements discussed and an agreed score decided for each paper. Agreement of within 1 point was achieved for 64% of papers and same quality banding was achieved for 66% of papers. Following this a further five papers were reviewed independently. Satisfactory agreement (within 1 point) and within same quality band was achieved across all five papers.

Results

A total of 20 papers were included in the review (see figure 1 and table 2) evaluating 16 different training programmes.

Figure 1: PRISMA diagram

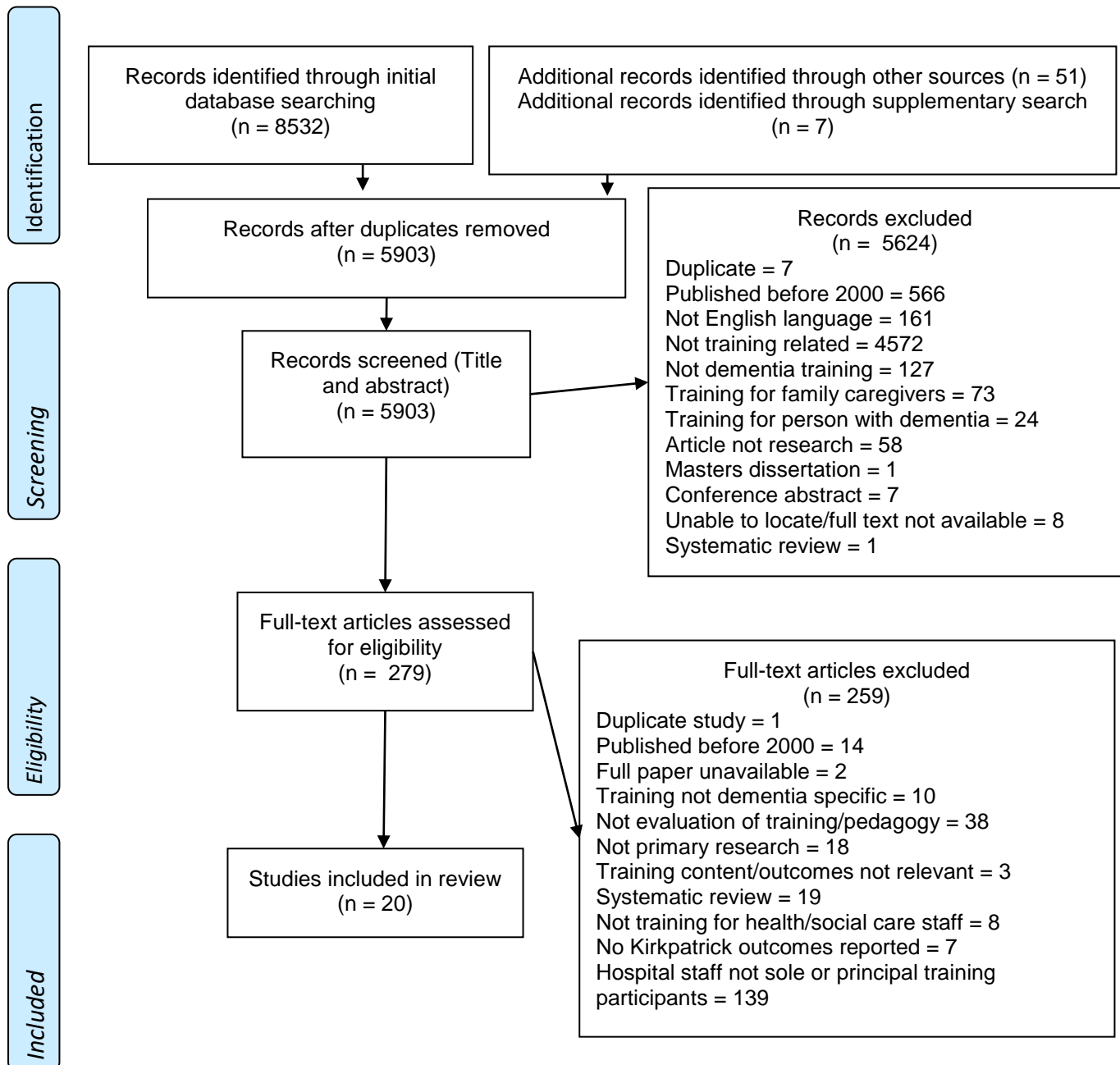


Table 1: Adapted quality rating criteria

Quality criteria Are ...	Specific questions to consider when rating	Rating
1. The research aims and questions/hypotheses clearly stated?	<ul style="list-style-type: none"> Does the author(s) clearly state what they plan to research? 	0 = No 1 = Partially 2 = Yes
2. Ethical issues addressed?	<ul style="list-style-type: none"> Does the author(s) state that ethical approval was sought? Does the author(s) demonstrate an awareness of the ethical issues raised by the study? (E.g. informed consent, confidentiality, responding to upset or distress, withdrawal etc.). 	0 = No 1 = Partially 2 = Yes
3. The methodology/study design appropriate to the research question and rationale for choice evident?	<ul style="list-style-type: none"> Does the author explicitly state what research methodology they have chosen? Is the chosen methodology appropriate to the research question? E.g. qualitative or quantitative or mixed methods approach? Where qualitative – grounded theory, IPA, ethnography etc. For qualitative research - does the chosen methodology appear appropriate to the research aims and questions? Is this fully justified? For quantitative research - Does the author(s) clearly state the design of the study? Does the author(s) justify the research design used? (E.g. longitudinal, cross sectional etc.) Does the author(s) identify the main variables investigated in the study? 	0 = No 1 = Partially but with weaknesses /missing info 2 = Yes
4. The sample size, selection and description appropriate?	<ul style="list-style-type: none"> Does the authors(s) clearly state how the study sample size was identified? Does the sample size appear to be large enough/appropriate? Does the author(s) adequately describe the sample (E.g. Gender, age, relationship to care receiver etc.) so that the reader can determine transferability of findings? Does the author(s) describe the context of where the samples were recruited from? Does the author(s) describe the method of recruitment used? (E.g. the sampling method, recruitment etc.) Does the author(s) identify the inclusion criteria? 	0 = No 1 = Partially but with weaknesses /missing info 2 = Yes
5. Are the method(s) of data collection appropriate, reliable and valid?	<ul style="list-style-type: none"> For quantitative studies: <ul style="list-style-type: none"> Does the author(s) justify that the measure is suitable for this population? Does the author(s) use measures that measure the desired constructs? Does the author(s) indicate whether the measures used have good psychometric properties? (E.g. test-retest reliability, inter-rater- 	0 = No 1 = Partially but with weaknesses /missing info 2 = Yes

	reliability, internal reliability and internal consistency (Cronbach's alpha)).	
	<ul style="list-style-type: none"> ○ Does the author(s) indicate that the measures used have demonstrated validity? 	
	<ul style="list-style-type: none"> • For qualitative studies <ul style="list-style-type: none"> ○ Were the methods used appropriate for the participants, valid and likely to be free of bias? ○ Does the author justify why particular data collection approaches were used e.g. interviews, focus groups 	
6. <i>The method(s) of data analysis reliable and valid?</i>	<ul style="list-style-type: none"> • For quantitative studies <ul style="list-style-type: none"> ○ Does the author(s) state which statistic tests were used? ○ Does the author(s) use statistical tests that appear to be appropriate to the nature of the data collected? (E.g. Does the data meet the assumptions of the test). ○ Were the statistical tests used appropriate to the research question? ○ Does the author(s) consider the impact of extraneous variables and control for these within the analysis process? ○ Does the author(s) provide evidence of statistical findings? (E.g. Data within the text, tables etc.). ○ Does the author(s) state the levels of significance? • For qualitative studies <ul style="list-style-type: none"> ○ Does the authors(s) state what approach they used to data analysis? ○ Does this approach appear to be suitable to the data gathered? ○ Does the approach appear to have been implemented in a structured/robust manner? ○ Does the author(s) provide details of how findings were validated? 	0 = No 1 = Partially 2 = Yes
7. <i>The findings and discussion clearly stated and appropriate?</i>	<ul style="list-style-type: none"> • Does the author(s) explicitly state their findings? • Does the author(s) present the statistical/qualitative data in a clear manner? • For quantitative studies <ul style="list-style-type: none"> ○ Does the author(s) clearly differentiate between significant and non-significant findings? • For qualitative studies <ul style="list-style-type: none"> ○ Does the author(s) clearly identify key themes or issues arising from the data? ○ Does the author(s) present data to support the themes presented • Does the author(s) summarise the main findings? • Does the author(s) link their findings back to the research aims? • Does the author(s) link their findings current 	0 = No 1 = Partially 2 = Yes

	<p>literature and/or psychological theory?</p> <ul style="list-style-type: none"> • Does the author(s) consider the clinical usefulness of their findings? • Does the author(s) identify the limitations of the research? (E.g. Sample size, recruitment strategies, method of data collection, analysis etc.) • Does the author(s) identify the strengths of the research? (E.g. Its usefulness etc.) • Does the author(s) make conclusions that are supported by their discussions of their findings? 	
Total		Range 0-14

Table 2: Included studies

Authors and reference	Aims	Country	Training programme name	Study design	Measurement and follow up	Participants	Quality score and rating
Baillie et al (2016).	To investigate staff perspectives of the effect of Barbara's Story on themselves, their colleagues and the organisation	UK	Barbara's Story	Qualitative post-training only using focus groups and individual interviews	Phase 1: 1-year after official launch of 'Barbara's story' Phase 2: commenced 1-month after final showing of 'Barbara's evolving story'	148 hospital staff: 76 nurses, 12 community staff, 29 AHPs, 6 doctor/dentist, 19 non-clinical staff with patient contact, 5 non-clinical staff with no patient contact, 1 manager.	8 Moderate
Banks et al (2014)	To develop, deliver, and evaluate a training programme to prepare NHS and Social Service Dementia Champions working in acute settings as Change Agents for practice	UK	Dementia Champions Training Programme	Mixed-methods post-training only using validated measures and achievement of learning outcomes assessed by submission of reports on practice-based tasks	'Distance travelled approach'. Approaches to Dementia Questionnaire at T1 (prior to training) and T2 (last day of training) Self-efficacy scale at T2 only Achievement of learning outcomes via work-based tasks and assignments during training	113 health professionals: 78 nurses, 20 allied health professionals, 10 occupational therapists, 6 physiotherapists, 2 speech and language therapists, 2 dieticians, 7 education/practice development staff, 3 managers, 1 Consultant Physician	8 Moderate

Burgess, L. and Page, S. (2003)	To measure the effectiveness of employing a nurse educator in dementia	UK	n/a	Qualitative surveys and focus groups	<p>Data collected on ongoing basis from commencement of nurse educator role</p> <ul style="list-style-type: none"> • Patient data, demographic characteristics; • number of referrals, visits entailed, interventions required, nursing actions, intervention and outcomes, and types of patient behaviour exhibited. <p>A series of focus groups, involving nurses and patients conducted (time of follow up not provided)</p>	172 staff members including 100 nurses. 52 relatives of patients with dementia	4 Low
Ellis, J. (2008)	To report on a pilot project taking an action research approach to provide dementia	UK	n/a	Mixed-methods survey containing fixed response and open questions	<p>Evaluation survey completed immediately post-training</p>	49 nurses attended training with n = 47 completing survey	1 Low

	awareness education for nurses on acute wards.						
Elvish et al (2014)	To report on the development and evaluation of a staff training intervention in dementia care designed for use in the general hospital setting: the 'Getting to Know Me' training programme. To undertake initial psychometric analysis on two new outcome scales designed to measure knowledge and confidence in dementia care.	UK	Getting to Know Me	Quantitative pre-post using validated measures	Controllability Beliefs Scale (CBS), Confidence in Dementia (CODE) Scale and Knowledge in Dementia (KIDE) Scale completed immediately prior to and post training	72 hospital staff on one of six general wards attended training. 30% (n = 21) nurses, 24% (n = 17) physiotherapists or occupational therapists, 14% (n = 10) foundation year doctors, 9% (n = 6) health-care assistants. Pre-post measures available on n = 72 (CBS), n = 62 (CODE) and n = 60 (KIDE)	12 High
Elvish et al (2016)	To evaluate a second phase roll-out of a dementia care training programme for general hospital staff and to further develop the Confidence in Dementia scale and the	UK	Getting to Know Me	Quantitative pre-post validated measures	Confidence in Dementia (CODE) Scale, Knowledge in Dementia (KIDE) Scale and Controllability Beliefs Scale (CBS) administered immediately prior to and post	517 acute hospital staff attended training with n = 480 included in analysis : 50% nurses, 21% Healthcare Assistants, 4% physio/OT therapists/assistants, 4% cadet nurses, 2% practitioners/assistant practitioners, 1% student nurses, 1%	13 High

	Knowledge in Dementia scale				training	housekeeping, 5% other roles, 12% unknown.	
Frade, S. (2005)	To promote staff learning within wards providing dementia care through implementing a learning set	UK	n/a	Qualitative focus groups post-training only	Focus group conducted during last training session	Unspecified number of dementia care nurses	1 Low
Galvin et al (2010)	To report the development, implementation and evaluation of a program entitled "Dementia-Friendly Hospitals: Care Not Crisis."	USA	Dementia Friendly Hospitals Initiative	Quantitative pre-post questionnaires	Pre-training questionnaire (demographics, practices and behaviours, knowledge, confidence), repeated immediately post-training and 120 days post-training. Quality rating form completed immediately post training.	540 hospital staff from 6 hospitals 60% nurses attended training with n=379 consenting to the research, n = 238 completing immediate post-test and n = 34 returning 120-day post-test	7 Moderate
Horner et al (2013)	To determine feasibility of novel staff education aiming to optimise care for confused older people	Australia	n/a	Mixed-methods pre-post questionnaires, interviews and focus groups	Non-validated knowledge questionnaire, UCLA geriatric attitudes scale. Individual interviews and focus groups. All administered immediately pre and post training	26 hospital staff completed training and consented to research with n = 6 returning pre-post measures	5 Low
Litvin et al (2012)	To describe the development	USA	Aging Q Program	Quantitative pre-post	Ongoing collection of data	100 residents (medical students)	9 Moderate

	and use of clinical decision-support (CDS) tools to facilitate geriatric education and improve the care delivered to older adults in an academic internal medicine residency ambulatory care clinic.			questionnaires and care record review	from digital patient records of use on CDS codes. Educator post-training survey		
					Other data collection is stated to have occurred but is not reported in this paper.		
McPhail et al (2009)	To evaluate a dementia educational programme in a small local hospital offering, for the first time, an acute geriatric service and its impact on knowledge in a new specialist aged care clinical setting.	Australia	n/a	Mixed methods survey study using different pre-post surveys	Survey of staff to inform development of training content and delivery Immediate post-training evaluation form	28 hospital staff attended training: 17 nurses, 4 physiotherapists, 2 pharmacists, 2 social workers, and 3 other	3 Low
Nayton et al (2014)	The development and delivery of a tailored education program to improve the quality of care of patients with dementia in a	Australia	The View from Here: Skills in Dementia Care for Acute Settings	Quantitative post-training only questionnaires	Pre-training data collected to inform training development included Approaches to Dementia Questionnaire, National Audit of Dementia (Care	49 participants from two Wards: 45 nurses, 3 occupational therapists, and 1 social worker attended training. Not all staff attended all sessions.	6 Moderate

	large, urban hospital.				in General Hospitals): Environmental Checklist and informal discussions with family caregivers			
					Immediate post-training evaluation forms completed by learners after each session Facilitator reflections			
Palmer et al (2014)	To examine changes impact of training on participants' attitudes, practices, confidence, knowledge and their reactions responses to the training programme	USA	Dementia Friendly Hospitals Initiative	Quantitative pre-post questionnaires	Non-validated questionnaire to measure attitudes/ practices, confidence, knowledge and responses to the programme completed immediately pre and post-training	355 staff at 4 hospitals including n=221 (62.3%) nurses, and unspecified numbers of therapists, social workers and chaplains attended training with n = 325 completing post-test and n = 88 completing 3-month follow-up.	8	Moderate
Schindel-Martin et al (2016)	To investigate the impact of the GPA education programme on acute care staff's Self-efficacy (SE) in delivery of person-centered	Canada	Gentle Persuasive Approaches (GPA)	Mixed methods pre-post validated measure and focus groups	Self-Perceived Behavioural Management Self-Efficacy Profile (SBMSEP) completed immediately pre and post training and at 8-week	745 staff employed in medicine, surgical oncology, orthopaedic surgery, intensive care unit, cardiac care unit, Emergency Department and Burn Unit, n = 468 intervention and n =	9	Moderate

	dementia care.				follow-up. Focus group at 8-week follow up	277 wait-list control, n = 20 focus group participants.	
Smythe et al (2014)	To develop, pilot and evaluate a brief psychosocial training intervention for staff working with people with dementia in an acute hospital setting.	UK	Brief psychosocial training intervention (BPTI)	Mixed methods using validated pre-post measures and focus groups	The Inventory of Geriatric Nurse Self-Efficacy, Approaches to Dementia Questionnaire, Maslach Burnout Inventory, Alzheimer's Disease Knowledge Scale (ADKS) Interviews/focus groups post- training only	81 ward staff completed training with n = 66 providing pre-post data, n = 15 interview participants	9 Moderate
Speziale et al (2009)	To assess the impact of the Gentle Persuasive Approaches (GPA) curriculum on staff knowledge and competency and patient risk events, incidents, and mental health.	Canada	Gentle Persuasive Approaches (GPA)	Quantitative pre-post questionnaires	Non-validated satisfaction with training questionnaire immediately post-training and 3-months post- training, average number of incidents of physical aggression 3- months pre- and post-training, occupational health and safety records 3- months pre- and post-training	99 participants from Food Services, Environmental Services, Psychology, Social Work, Spiritual Care, Occupational Therapy, Therapeutic Recreation, Nursing, Administration, and Clerical Staff with n = 49 completing post- training measures	7 Moderate
Surr et al (2015)	To evaluate the	UK	Person-centred	Quantitative	Approaches to	42 acute hospital staff	13

	efficacy of a specialist training programme for acute hospital staff regarding improving attitudes, satisfaction and feelings of caring efficacy, in provision of care to people with dementia.		care training programme for acute hospitals (PCTAH)	pre-post validated measures	Dementia Questionnaire, Staff Experiences of Working with Dementia Residents and Caring Efficacy Scale all completed immediately pre-training (baseline), 4-6 weeks post- Foundation level training and post- Intermediate training (3-4 months post-baseline)	working in clinical roles attended training, n = 41 consented to research(n= 35 (85%) nurses), n = 22 completed T2 measures, n = 12 completed T3 measures	High
Teodorczuk et al (2014)	To evaluate impact of training on confidence, professionalism, attitudes and knowledge	UK	n/a	Mixed-methods pre-post questionnaire		48 participants: nurses (n=15), health care assistants (n=8), domestic staff (n=2), ward clerks (n=2), modern matrons (n=5), physiotherapists (n=5), physiotherapy assistants (n=3), occupational therapists (n=2), doctors (n=3), pharmacists and pharmacy assistants (n=2), and porters (n=1)	6 Moderate
Waugh et al	To evaluate	UK	The Dementia	Mixed methods		35 hospital staff	1

(2011)	participant perceptions of the Dementia Champions Programme		Champions Programme	questionnaire and focus groups post-training only	attended training with n = 26 completing evaluation	Low
Wesson and Chapman (2010)	To report on provision of education for all levels of staff throughout the county's health system	UK	Cornwall dementia and communication difficulties education scheme	Qualitative post-training only and pre-post case notes audit	All staff (unspecified number) working on a single ward	1 Low

Table 3: Training programme details of Included studies

Authors and year	Training format	Training programme and individual session length	Training delivery features	Identified barriers and facilitators	Kirkpatrick outcomes reported			
					Reaction	Learning	Behaviour	Outcomes
Baillie et al (2016)	Filmed ethnodrama with group discussion	Does not state	Development of a film "Barbara's Story" showing experiences of woman with early, undiagnosed dementia, attending hospital appointments and then admitted for cardiac investigations, with focus on her perspective. The film was mandatory for all staff (clinical and non-clinical) and included facilitated discussion after film viewing. Each attendee provided with a resource pack. Stage two was further, non-mandatory films showing "Barbara's evolving story" showing deteriorating health and her care in the	Lack of time to attend due to staffing shortages and workload. Inclusion of phase 1 in mandatory training meant staff had to be released to attend and it was seen by all staff leading to collective shared perspective. Other initiatives alongside training helped staff to implement learning.	+ High profile and seen to carry lot of weight within Trust + Training taken seriously due to mandatory nature + Staff gave examples of emotional responses and connection to film	+ attitude + confidence + knowledge		

Banks et al (2014)	Classroom + practice placement + on-line learning	5.5 days 5 study days + 0.5 day in community setting	community and hospital with a facilitated discussion after each session. Whole series then made available on Trust's intranet. Blended learning programme of five in-classroom study days and a half day placement in a community setting. Appreciative Inquiry approach adopted building on existing good practice. Learners accessed e-learning resources prior to each study day via the University's virtual learning environment (VLE). This also supported interaction with peer support from members of the education team. Study days included group activities and visits from invited speakers including carers	Difficulties raised by learners included access to the on-line resources (resolved by session 3), lack of support from workplace to undertake study.	+ reaction to placement and knowing more about community support, + generally to study day sessions + some felt group work particularly beneficial - Some apprehension about organising and attending placement - problems accessing on-line resources - some pre-reading too difficult - some felt group work not worked well	+ attitude +/- confidence	+/- variability in implementation of learning from plans to actual changes
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Burgess, L. and Page, S. (2003)	Classroom + in-workplace supervision and role modelling	Does not state	Traditional didactic training sessions were delivered by the nurse educator. She also worked on the wards facilitating situation-based learning and role-modelling good practice			+ knowledge + confidence	- carer satisfaction
Ellis, J. (2008)	DVD-based content and discussion with carers of people with dementia present	5 hours in 4 sessions of 75 minutes	Each session included four carer accounts of experiences in hospital, (e.g. experiences of diagnosis and care when a patient has communication problems, carers helping at meal times, and psychological care). Carers were also present during the session. Questions, comments and general discussion followed video viewing.	Carer accounts seemed to have strengthened impact	+ positive feedback, seen as valuable	+ knowledge	
Elvish et al (2014)	Classroom	3-6 hours in 4 sessions of 45-90 minutes	Flexible programme of sessions that could be delivered individually or in blocks, developed from staff focus groups and designed for acute hospital staff.	High attrition rate of 37% over the four sessions – a single one-day course rather than multiple sessions may improve success. Ongoing		+/- statistically but not clinically significant improvements in knowledge and confidence	

Elvish et al (2016)	Classroom	6 hours delivered as one full day	<p>Delivered by some of paper's authors and staff from the hospital.</p> <p>Designed to be delivered flexibly as individual sessions or in blocks. Training package included a "Getting to Know Me" Manual for trainers, a "Getting to Know Me": booklet for Staff, a communication skills pocket guide containing 'top tips' for communication with patients with dementia, a "Getting to Know Me" four-sided patient document to be completed by a person and their family and designed to stand up by the hospital bedside, Six PowerPoint slide presentations and video clips of interviews with</p>	<p>supervision of those completing training not part of programme but may be necessary to help embed learning</p> <p>Unclear as to most effective and efficient way of delivering to staff working in busy hospitals e.g. multiple short sessions or one single day</p>	<p>+ attitude</p> <p>+ confidence</p> <p>+ knowledge</p>
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Frade, S. (2005)	Reflective learning set including discussion of specific practice cases	6 hours in 6 sessions of 1-hour	people with dementia and a relative. Delivered by the hospital staff. Weekly sessions run by two facilitators. Each week one nurse would bring an issue of practice concern to the group to describe and discuss. The facilitators used open questions to help attendees reflect on the scenario and then to identify what could be done to address the situation. The effectiveness of this nursing plan was then discussed at the next meeting.		+ general positive feedback	+ knowledge
Galvin et al (2010)	Classroom – didactic + discussion of case studies and generation of care plans	7 hours delivered as five modules over 1-day	Didactic information and group learning through review of case studies and generation of care plans and discharge plans using specific forms.		+ largely useful and applicable	+/- knowledge but not maintained for some staff + confidence + attitudes
Horner et al (2013)	On-line + in-service supervision	Does not state	Staff had the option to complete the module on-line or in	Of 60 eligible staff only 26 consented to		- knowledge - attitude + confidence

			a hard copy format. De-briefing to each staff member who completed the self-directed program was provided by an education resource officer who was an experienced nurse educator. They also spent two-hour blocks over four-days on the ward to offer in-service support to staff.	participate and only 6 completed the education intervention and returned the pre-post surveys. All chose to complete the education in hard copy format rather than on-line due to lack of internet access. Lack of time to undertake learning and management support.			
Litvin et al (2012)	Classroom + decision support tool	Training of an unspecified number of hours over 3-months	Didactic lectures, academic detailing and the design and inclusion of Clinical Decision Support (CDS) tools into the Electronic Medical Records over a three-month period. The CDS tools provided recommendations for actions that learners could apply in their practice of working with patients with the condition.	Unclear how implementation could be sustained after the 3-month period. Low numbers of people with dementia in clinical meant limited opportunities to receive hand-on training.	+ consistently reported as valuable		+ use of assessment process
McPhail et al (2009)	Classroom	10 hours in 10 x 1-hour sessions	Results of a staff questionnaire used to develop training		+ positive, applicable	+ knowledge	+ reduced aggressive behaviours

recorded

Nayton et al (2014)	Classroom including didactic content, discussion and introduction of assessment tools	3 hours	<p>content. No further details provided on delivery methods</p> <p>Didactic content with small group activities to support reflection, all focussed on the perspective of the person with dementia. Learners provided with accompanying booklet providing more detail on theory. First session provided theoretical foundations for rest of programme. Final four sessions were practical introducing tools for use in future practice.</p>	<p>Progressive development of the programme helped to tailor content based on feedback from stakeholders. Accessible style aimed at range of staff. Facilitator had current, relevant acute care and dementia care expertise. Tailored approach to delivery to needs and expectations addressed some of barriers. Conflict between organisational need for short sessions to minimise loss of productivity and staff desire for longer sessions to cover more materials and support further discussion.</p>	<p>+ high satisfaction with training, relevant - wanted longer sessions</p>	<p>+ knowledge + confidence</p>
Palmer et al (2014)	Classroom standardised	Five modules delivered	Significantly updated version of		+ rated as effective,	+ knowledge + confidence

	didactic slides and video content	over 1-day	previous programme (see Galvin) to include more videos, active learning approaches and case studies. Training materials included didactic content, slides, videos, learning activities, and handouts. Delivered by member of the Alzheimer's Association or a volunteer dementia expert using standard slides. Video clips included nurses, physicians, social workers, family caregivers, and Alzheimer's Association staff discussing problems associated with dementia care. Participants provided with copies of the slides and handouts of important information.		information covered was useful and helpful to role + liked handouts provided and use of video clips to demonstrate concepts + trainer knowledge	+ attitude
Schindel-Martin et al (2016)	Classroom including didactic	7.5 hours in single day	Literature-informed, standardised educational	Barriers to implementation identified by	+ relevant to patient care + able to	+ attitude +/- confidence, + immediate

	content, case studies. video vignettes and small group discussion		programme grounded in person-centred care and designed originally for long-term care settings. Delivered by clinical educators following their completion of 2-day train-the-trainer programme. Delivery is interactive, including exercises, case studies, video vignettes, and small group work. Participants are provided with a manual.	earners included a busy environment with competing demands, heavy workloads and liaising with physicians who had not completed the training	identify best practices to take back into practice + curriculum engaging and interesting	post-training but – 6-8 weeks post-training + knowledge
Smythe et al (2014)	One-to-one in-service learning with trainer working alongside staff member to facilitate reflection and feedback	5 hours delivered over 1-hour per week for 5 weeks	Trainers were mental health nurse with training experience and two general nurses using a standard manual. Each session included small group in-service learning (n=5) consisting of discussion of training objectives and important messages, working alongside the staff member and feedback and reflection.	Staff often not available so usually delivered individually. Due to mixed nature of wards staff did not always have access to patients with dementia to work with during learning sessions. Ward environments meant role modelling group activities with people with dementia was		- knowledge - confidence - attitudes

				not possible. Trainers often asked to reschedule at last minute. Often necessary for one of trainers to backfill to free staff member up to take part.				
Speziale et al (2009)	Classroom	7.5 hours delivered over multiple sessions over a 3-month period	Curriculum designed to help staff respond in a respectful, confident and skilful manner to people with dementia. Focus on understanding person with dementia as unique and emotionally responsive and on strategies to communicate better, diffuse behaviours and be respectful to needs.		+ positively rated and would recommend to co-worker	+ knowledge	+ restraint use	+ resident aggressive behaviours
Surr et al (2015)	Classroom	3.5 days delivered as 3.5 hour Foundation and 6 half-day Intermediate level modules	Programme content based on knowledge gaps identified in literature and with nurse managers. Programme has two levels (Foundation designed for all			+ attitudes + confidence		

Teodorczuk et al (2014)	Classroom including input from patients	2 day programme	<p>hospital staff and Intermediate designed for staff with direct clinical contact with people with dementia)</p> <p>Day 1 focussed on challenging beliefs and attitudes and day 2 on practice change and managing complex cases. Delivery included patients delivering components of the programme, two patient videos, inter-professional teaching and action learning activities.</p>	<p>Underpinned by robust research and theory and which has patients and carers at its heart.</p> <p>Empowering to staff who might not otherwise access training. Inter-professional so staff feel empowered to challenge.</p> <p>However, very few doctors attended. Doctors often had misplaced views they had little to learn about dementia.</p>		<p>+ confidence</p> <p>+ knowledge</p>	
Wesson and Chapman (2010)	Classroom	2 hour session	<p>Available to all hospital staff. Delivered in a relaxed and informal way with opportunity to go into more depth in specific areas.</p>	<p>Ward moves and staff changes make it difficult to co-ordinate staff and motivate them to attend. Scheme overall supported by enthusiastic learners and</p>	<p>+ staff appreciated the training</p> <p>+ structured charts and assessment particularly useful</p>	<p>+ use of assessment charts</p> <p>+ antipsychotic prescribing</p>	

Waugh et al (2011)	Classroom + practice placement	13 days over 18 months in one day sessions	Programme included classroom based theory and group work, peer presentations, personal accounts from carers, experience in a daycare setting, action learning sets and conduct of a workplace assessment and development of a practice improvement action plan	passionate leader.	+ seen as valuable + carer's personal experiences + role modelling by training team + experience in day care	+ attitude + knowledge

Study and participant characteristics

The majority of studies were conducted in the UK (n=12), with the remainder carried out in the US (n=3), Australia (n=3) and Canada (n=2). Publication dates ranged from 2003-2016. All but two studies (Frade, 2005, Wesson, 2010) detailed the number of staff participants, which ranged from 6-548, with a total of 2137 participants across the 18 studies reporting participant numbers. All but two (Ellis, 2008, Litvin et al., 2012) of the programmes were multi-disciplinary delivering the training to staff from a range of health setting roles. The majority of participants were nurses in the 11 studies where participant role was reported.

Study design, methodology and quality

The assessed quality of studies varied but the majority were of low (n=7) or medium quality (n=10) with only three rated as high quality. Most were quantitative (n=8) or mixed/multi methods (n=8) studies and in four studies outcomes were evaluated using a purely qualitative approach. In over half of the studies (n=11) a pre-post measures design was used, while in the remainder outcomes were assessed through data collected post-training only. The high quality studies were characterised by a quantitative pre-post design, while in poor quality studies predominantly a post training only, qualitative or mixed methods design was used. The moderate quality studies were largely of a quantitative or mixed-methods pre-post design. The low quality studies were generally assessed to be poor on appropriate design, sample description and size, data collection methods and analysis with the majority scoring 0 in these elements. The moderate quality studies generally rated poorly on study design and data collection methods, while the high quality studies scored well across all areas.

Teaching and learning methods adopted

In over half of the training programmes traditional in-classroom learning (n=11) was used; in a further five in-classroom learning was combined with a decision support tool (n=1), in the workplace learning (n=1) or a practice placement/visit (n=2). Other teaching and learning methods used included a DVD plus group discussion (n=1), purely workplace-based learning (n=1), a learning set (n=1), filmed ethnodrama with group discussion (n=1) and e-learning plus educational support (n=1). The majority of training programmes were of half to full-day duration (n=8), with the remaining programmes predominantly lasting longer than this (1-2 days n=1, 2+ days n=5). Only one training programme was of less than half a day duration. Three studies did not state duration for completion of training.

Kirkpatrick evaluation levels addressed

For 13 studies outcomes of training with regard to reaction (65%) were reported, elements of learning were reported in 18 (90%), behaviour change in four (20%) on

and outcomes/results in three (15%). In the reporting of only one study was evidence to assess all four Kirkpatrick levels presented (Speziale et al., 2009).

Reaction

In the thirteen studies where authors reported on reaction to training, in all but one study this was assessed via written evaluation forms completed by participants post training, with this complemented with interviews or focus groups in a small number of studies. The majority of studies where authors assessed reaction, were judged to be of a moderate quality (66%), while the remainder were classified as low quality. The studies assessed as poor quality were generally of very low quality failing to comply across all components of the quality rating criteria, with 80% awarded an overall quality score of 1. In one study (Baillie et al., 2016) the sole evaluation method was focus groups with staff. In all studies a positive participant reaction to training was reported, however in three studies (Frade, 2005, McPhail et al., 2009, Speziale et al., 2009) little more was reported than this in the paper's content. In the papers of the remaining nine studies, details of specific aspects of training which participants identified as particularly useful, or which they recommended changing were reported. These included the training being directly relevant to them and their practice (Palmer et al., 2014, Schindel Martin et al., 2016), including strategies or practical tools they could take directly back to their workplace (Galvin et al., 2010, Litvin et al., 2012, Nayton et al., 2014, Palmer et al., 2014, Schindel Martin et al., 2016, Wesson, 2010). The opportunity to experience a placement in a community setting (Banks et al., 2014, Waugh et al., 2011) from two different groups of participants undertaking the same programme and the inclusion of the direct experiences of people with dementia and carers within the programme (Baillie et al., 2016, Ellis, 2008, Waugh et al., 2011) were also identified as impactful. Staff in the study by Baillie et al. (2016) reported the ethnodrama's focus on the direct experiences of 'Barbara' a person living with dementia to be particularly successful, since it enabled them to engage emotionally and empathically with the training. Participants also described facilitator style and role modelling to have had a positive impact on learning (Palmer et al., 2014, Waugh et al., 2011).

Aspects of training reported to impact negatively on learning were problems accessing on-line reading materials; difficulties in understanding learning materials, for example on legislation (Banks et al., 2014); the amount of work/time involved in undertaking the programme or in being able to get away from the clinical area to attend (Baillie et al., 2016, Banks et al., 2014); and sessions being too short (Nayton et al., 2014). In the latter programme, individual training sessions were 25 minutes or less in length, this being the only programme to include sessions of less than 1 hour.

Learning

Of the 18 studies in which training effectiveness was assessed with regard to learning, in 16 knowledge gains were evaluated, in 14 the impact on staff confidence or self-efficacy and in 10 the effect on staff attitudes. Of the papers that reported

learning, 17% were assessed to be of high quality, 50% moderate and 33% low quality.

Knowledge

In the 16 studies where authors considered impact on staff knowledge, in 14 a positive impact on knowledge was reported, while in two no change reported. However, methods for evaluation of knowledge varied and in seven of the studies (Baillie et al., 2016, Burgess and Page, 2003, Ellis, 2008, Frade, 2005, Schindel Martin et al., 2016, Speziale et al., 2009, Waugh et al., 2011) this was assessed by asking staff if they felt they had learned anything as a result of attending training through interviews, focus groups and informal feedback. Staff in all of these studies reported positive knowledge gains. However, whilst understanding staff perception of learning has value, it does not provide an objective method of assessing the extent or focus of knowledge gains. In three studies validated knowledge measures were used. In two significant knowledge improvements post-training compared to pre-training scores were reported (Elvish et al., 2014, Elvish et al., 2016), whilst in one study no change was reported (Smythe et al., 2014). In a further six studies, authors used non-validated questionnaires, five of these studies reported outcomes demonstrating significant positive knowledge gains (Galvin et al., 2010, McPhail et al., 2009, Nayton et al., 2014, Palmer et al., 2014) and one reported no change (Horner et al., 2013).

A common issue identified by authors of both studies reporting no knowledge gains was poor staff engagement with and completion of the training programme. Smythe et al (2014) implemented an in-service learning programme where staff spent one hour a week over five weeks working alongside a learning facilitator on the ward. Staff reported problems in having patients with dementia to work with during scheduled learning and sessions being cancelled due to short staffing. Horner et al. (2013) implemented three individual e-learning modules accompanied by individual support from an in service learning facilitator. They found that despite 26 staff signing up to undertake the training only six actually completed it and staff were not proactive in seeking support from the learning facilitator. This indicates that where learning is reliant on individuals to schedule time to undertake it chances of optimal uptake and thus impact is likely to be limited. All of the authors reporting studies in which positive learning gains were found, utilised group-based learning in classroom settings.

Attitudes

A similar picture emerges when attitude change is examined. In three studies (Baillie et al., 2016, Schindel Martin et al., 2016, Waugh et al., 2011) qualitative methods for assessing attitude change were used and thus, while offering insight in to staff perceptions, they do not provide an objective measure of this outcome. Of the remaining seven studies, in six the authors used a validated measure; the

Approaches to Dementia Questionnaire (ADQ) in four studies (Banks et al., 2014, Palmer et al., 2014, Smythe et al., 2014, Surr et al., 2016) using and the Controllability Beliefs Scale (CBS) (Elvish et al., 2014, Elvish et al., 2016) in two. The only training programmes where the authors did not report attitude change post training (Horner et al., 2013, Smythe et al., 2014) were those adopting individualised learning, at times organised by the learner and where uptake had been poor. The programmes where study authors reported significant attitude change (Banks et al., 2014, Elvish et al., 2014, Elvish et al., 2016, Palmer et al., 2014, Surr et al., 2016) were longer in terms of, total duration of contact time with a learning facilitator (1-5.5 days) and in individual session length (1 or more consecutive days), compared to the ineffective programmes which had five hours total duration with sessions of one-hour (Smythe et al. 2014) and 1-2 hour sessions (total training duration not detailed) (Horner et al. 2013).

Confidence/self-efficacy

Impact of training on staff feelings of confidence or self-efficacy was more variable across the thirteen studies in which it was reported. The outcomes of eleven studies showed improved confidence immediately post-training. As with knowledge and attitudes, in three studies (Baillie et al., 2016, Burgess and Page, 2003, Horner et al., 2013) this was evaluated via qualitative self-report, permitting assessment of staff subjective perceptions of change. Validated measures were used by the authors of four studies (Elvish et al., 2014, Elvish et al., 2016, Smythe et al., 2014, Surr et al., 2016) and in five papers the use of non-validated questionnaires was reported (Galvin et al., 2010, Nayton et al., 2014, Palmer et al., 2014, Schindel Martin et al., 2016, Teodorczuk et al., 2014). Common features of the training programmes were use of classroom-based learning, all but one (Nayton et al., 2014) was at least a full day duration and all included elements of or were founded on the direct experiences of people living with dementia and their carers. In only two studies (Galvin et al., 2010, Schindel Martin et al., 2016) was an additional follow-up at between 6-16 weeks post-training carried out. The results of both studies indicated significant reductions in confidence, suggesting this may be difficult to sustain over time post-training. However, Smythe et al. (2014) found no significant change in staff confidence following training delivery and Banks et al. (2014) reported considerable variability in confidence across staff completing their training. In the former study, issues with completion of the in-the-workplace training were identified, in the latter study measurement of confidence was completed post-training only and therefore only post-training confidence levels rather than pre to post-training confidence change could be assessed.

Behaviour change

Of the four studies in which staff behaviour change was evaluated, in two (Litvin et al., 2012, Wesson, 2010) documentary review of assessments or care delivered as contained within care records was used to assess this, and in two (Banks et al.,

2014, Speziale et al., 2009) self-report obtained through a questionnaire or analysis of assignment content was utilized. Three-quarters of these studies were of moderate quality and the remaining study was assessed to be of low quality. The authors of all four studies report positive impact on behaviours. A common feature of the training evaluated by all four studies was the inclusion of specific assessment tools or practice-based methods that the training programme supported staff to implement. In the two studies where this was measured more objectively through retrospective care record review, staff showed significant improvements during the intervention period (Litvin et al., 2012) or post-training (Wesson, 2010) in the regularity of use of screening and assessment tools, greater accuracy and clarity in their recognition and reporting of pain and there was a significant reduction in the prescribing of anti-psychotics. This suggests effectiveness of the programmes in achieving staff behaviour change during a three-month intervention period, or immediately post-training. However, in these studies whether behaviour change was sustained over time beyond this was not evaluated.

Outcomes

In the three studies where authors reported on outcomes, two-thirds were of low quality and one-third was moderate quality. Significant reductions in the recording of aggressive behaviours in people with dementia were reported by the authors in two (McPhail et al., 2009, Speziale et al., 2009) of the studies. The authors of the third (Burgess and Page, 2003) reported on relative/carer satisfaction pre and post-training. They found that while the proportion of relatives who were concerned about quality of care reduced, as did the proportion of those considering making a formal complaint (64% down to 19%), 13% of relatives remained concerned enough to lodge a complaint. Given the small numbers of studies in which practice or clinical outcomes were reported, it is difficult to draw any substantive conclusions about elements of training and their impact on outcomes. However, the use of classroom-based learning featured in all three programmes that did evaluate this Kirkpatrick level in the review and in two of the programmes (Burgess and Page, 2003, McPhail et al., 2009), one or more of the trained staff were noted as becoming local 'experts' who championed dementia care and were used as a resource by other staff. This suggests this approach may be beneficial in supporting implementation of training to facilitate practice change and improved care outcomes.

Discussion

Authors of previous systematic and literature reviews (Alushi et al., 2015, Beeber et al., 2010, Brody and Galvin, 2013, Eggenberger et al., 2013, Elliott et al., 2012, Fossey et al., 2014, Kuske et al., 2007, McCabe et al., 2007, Perry and et, 2011, Raymond et al., 2014, Scerri et al., 2016, Spector et al., 2013, Zientz et al., 2007) have described published research and drawn conclusions about the general effectiveness of dementia training for a range of outcomes. However, in no reviews

have the features of training that appear to be more effective with regard to Kirkpatrick's four levels of evaluation been systematically examined.

Building on the descriptive review of dementia training programmes for acute hospital staff conducted by Scerri et al. (2016), this paper has drawn out the key features in the design and delivery of training programmes in this setting, which appear to lead to positive outcomes. Given the predominantly moderate to weak nature of the research included in this review, the results must be treated with some caution. Nevertheless, including a broad range of studies, with varying methods, sample sizes and designs has permitted some common features to be identified across training programmes with positive indicators or outcomes across one or more of the Kirkpatrick levels.

Training that was directly relevant to hospital staff and their practice, which included practical tools or care strategies directly applicable in the workplace and which utilised the direct voices of people with dementia and their carers, was particularly valued by staff attending training. Negative reactions were largely related to practical aspects of training attendance including ability to access and understand materials, the time involved in undertaking training and difficulties getting away from clinical areas to attend training sessions. A common issue in the studies where authors found little or no impact of training on staff knowledge and attitudes, was poor staff engagement with and completion of the training programme, a finding in other reviews focussing on long-term care (Beeber et al., 2010) and a range of care settings (Eggenberger et al., 2013). Programmes most likely to lead to positive attitude change and increased staff confidence were of longer duration and were classroom-based and thus did not rely on staff to negotiate or set aside their own time for learning for example within daily practice. This indicates that in designing training programmes for hospital staff it is equally as important for positive outcomes, to consider the pragmatics of training design to support staff attendance and engagement, as it is to consider content and delivery approaches. This requires engagement of care provider organisations and staff to advice on practicability, as identified in existing reviews of training on dementia in long-term care settings (Beeber et al., 2010).

Programmes most likely to lead to changes to staff behaviour and to practice outcomes contained content such as assessment tools and care approaches, which were practical methods for staff to take back and apply in their day-to-day practice. As with two previous systematic reviews (Fossey et al., 2014, Spector et al., 2013) this review indicates that that developing a number of staff within the workforce to act as 'experts' or 'champions', who can help to embed learning in practice and act as an ongoing resource for other staff post-training, is more likely to lead to positive outcomes. However, a common limitation of all of the included studies was a lack of follow-up over time, post-training and therefore, benefits beyond the immediate post-training period are not understood. This limitation has also been reported in literature reviews of effects of dementia training in long-term care settings (Kuske et al., 2007).

In the small number of studies with a longer (3+ months) follow-up period post-training, staff confidence levels were a common outcome. They found that confidence levels that had shown significant improvement immediately post-training declined over time, suggesting a method for supporting confidence, or for refreshing training regularly may be required. The short-lived effect of training interventions has also been highlighted in literature reviews of the evidence of training outcomes in long-term care settings (McCabe et al., 2007).

Failure to consider Kirkpatrick's levels of evaluation within studies of dementia training in hospital settings has been identified as an area of weakness across studies to date (Scerri et al., 2016). This review has identified that previous systematic and literature reviews have failed to consider the impact of training design, content and delivery in considering benefits, instead using the term *training* to reflect a huge range of provision using varying designs, content and delivery methods, which are not directly comparable with one another. This review has demonstrated that positive and negative *features* of training programmes that may be more likely to lead to pedagogical, clinical or practice efficacy can be identified and suggestions made for the design of future training programmes for hospital staff.

In this review we have also identified that while in the majority of studies inter-disciplinary training programmes aimed at staff working in all roles across healthcare were utilised, around half of staff attending training were nurses. While previous literature reviews have highlighted the value of inter-professional learning (Brody and Galvin, 2013), authors of current studies have not broken evaluation down to enable them to understand how well programmes are meeting the needs of individual staff groups. Therefore, there is a need to evaluate existing programmes, which are aimed at the whole healthcare workforce, with regard to their impact on other non-nursing clinical team members and the wider clinical and non-clinical support staff in hospitals.

Limitations

Limitations of this review are only including papers published in English, since 2000. This may have excluded non-English language and older studies that might have contributed further understanding of effective dementia training or education for hospital staff. The use of open inclusion criteria resulted in the utilisation of a broad evidence base, with regard to research quality and study design. While this did mean a larger number of studies were able to be included, this diversity does permit limited comparison of outcomes and, therefore, caution is needed in interpreting the results. Our approach did not involve hand searching of web-sites to identify if pilot studies or more detailed reports had been published describing the programmes in more detail in the grey literature or elsewhere. Therefore, our information extracted on each programme may not include all published details if they were reported elsewhere, since it relied only on what was reported in the studies we located using our systematic methods.

Implications for practice and conclusion

This review has demonstrated that specific features of dementia training that may be associated with greater pedagogical, practice or clinical effectiveness can be identified from the evidence base and suggestions for the design of future training programmes for hospital staff made. Based on the current evidence base this review suggested that the following features of training were more likely to lead to positive outcomes across the four Kirkpatrick levels of evaluation. Training should:

- Be relevant to the staffs' role and workplace, for example through the content of training and learning activities being specifically tailored to the workplace role and duties of those attending. This is more likely to lead to positive staff reactions to and engagement with the training (Palmer et al., 2014, Schindel Martin et al., 2016);
- Include strategies, tools or approaches that staff can apply directly into their own practice, for example, assessment tools. This is not only beneficial in terms of learner reactions to training, but produces positive outcomes associated with staff behaviour change in practice (Galvin et al., 2010, Litvin et al., 2012, Nayton et al., 2014, Palmer et al., 2014, Schindel Martin et al., 2016, Wesson, 2010);
- Consider inclusion of a placement or opportunity for staff to spend time in a setting other than their own workplace, where practice and issues complimentary to their own experiences can be accessed, since this is viewed positively by learners (Banks et al., 2014, Waugh et al., 2011);
- Include the direct voice and experiences of people living with dementia and family caregivers, for example through video stories and vignettes or via direct involvement in delivery of training, since this leads to positive learner reactions and positive outcomes for learner confidence and self-efficacy (Baillie et al., 2016, Ellis, 2008, Waugh et al., 2011);
- Be facilitated by someone who is able to role model good practice and who has an engaging and positive style, since this produces positive learner reactions to the training (Palmer et al., 2014, Waugh et al., 2011);
- Not utilise independent study via e-learning or rely on participants to access materials on-line in-between training sessions, due to problems with individual motivation and with accessing the internet in the workplace. This can lead to poor outcomes in terms of learner knowledge gains (Banks et al., 2014, Horner et al., 2013);
- Not include materials that are difficult to understand e.g. legislation documents, particularly as pre/between-training session reading since this can cause learner dissatisfaction (Banks et al., 2014);

- Not rely on individuals to schedule time for their own training, for example through e-learning or in-practice sessions with a mentor, since it can often be difficult for learners to negotiate adequate or any time for learning, particularly when there are significant work pressures and staff shortages. This has a negative impact on learning outcomes including poor knowledge gains and limited learner attitude change (Horner et al., 2013, Smythe et al., 2014);
- Involve group learning in a classroom setting, although this may be successfully accompanied by additional learning and support activities. The opportunity to engage with other learners and a facilitator in a small or large group situation appears to be imperative for increasing learning, staff confidence and self-efficacy and outcomes for people with dementia (Burgess and Page, 2003, Elvish et al., 2014, Elvish et al., 2016, Galvin et al., 2010, McPhail et al., 2009, Nayton et al., 2014, Palmer et al., 2014, Schindel Martin et al., 2016, Speziale et al., 2009, Surr et al., 2016, Teodorczuk et al., 2014);
- Be of at least one-day duration and delivered ideally in full day training sessions, or as a minimum sessions of at least one-hour. Training programmes of a longer total duration and which provide sustained periods of time for staff to engage in learning over a series of individual sessions seem to particularly lead to more positive outcomes in terms of staff attitude change and self-efficacy (Banks et al., 2014, Elvish et al., 2014, Elvish et al., 2016, Galvin et al., 2010, Palmer et al., 2014, Schindel Martin et al., 2016, Speziale et al., 2009, Surr et al., 2016, Teodorczuk et al., 2014);
- Consider the development and support of in-service 'experts' who can serve as a resource to other staff during implementation of training and practice change across a healthcare workforce. This may have benefits for outcomes for people with dementia (Burgess and Page, 2003, McPhail et al., 2009, Speziale et al., 2009).

It is proposed these suggestions be used to inform the development of future programmes of dementia training for hospital staff. However, further robust evaluation of training outcomes, considering all of the Kirkpatrick levels, is required to assess their accuracy before they can be recommended as formal training design guidelines.

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